

# **Regional Wastewater Services Plan**

## **Semi-annual Report**

**June 2002**



**King County**

Department of  
Natural Resources and Parks

**Wastewater Treatment Division**



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Visit the Regional Wastewater Services Plant Web site at  
<http://dnr.metrokc.gov/wtd/rwsp/rwsp.htm>

# Introduction

This report describes progress made in implementing the Regional Wastewater Services Plan for the period January through June 2002. The report is organized according to the major elements of the RWSP, including treatment, conveyance, infiltration and inflow, combined sewer overflows, biosolids, and water reuse. The activities under each element are summarized along with a schedule for the remainder of the year. The report also provides the budget and staffing status for RWSP capital projects as of April 2002.

## Background

In December 1999, the King County Council adopted Ordinance 13680, which comprehensively updated King County's Comprehensive Water Pollution Abatement plan. This update, termed the Regional Wastewater Services Plan, is a 30-year capital improvement program designed to provide wastewater capacity for this region's rapidly growing population and protect its aquatic resources.

Ordinance 13680 requires the King County Executive to report semiannually to the King County Council and King County Regional Water Quality Committee about progress in siting and constructing new wastewater facilities. This report, in conjunction with a briefing to the Council and RWQC, partially satisfies the requirement; the Executive will also provide an annual report in December 2001 to satisfy the full requirement.

## Accomplishments

A significant amount of work was completed on the Regional Wastewater Services Plan in the first half of 2002.

- The **Brightwater siting program** developed a set of conveyance alternatives for the Route 9 and Unocal treatment plant sites as part of the environmental scoping process. Scoping notices were mailed to approximately 60,000 agencies, tribes, residents, and businesses to solicit comments in preparation for writing the draft environmental impact statement later this year.
- **Regional conveyance planning** continues in conjunction with the Brightwater siting process, and we expect to complete planning on two basins this year—South Lake Sammamish and North Lake Sammamish. In addition, five capital projects are in design and two are in construction.

- The **Infiltration/Inflow program** completed flow monitoring in January and is beginning to model the conveyance system using the flow information. The program is also moving forward with 10 pilot projects for I/I rehabilitation and is developing standards and policies for local agencies regarding new construction, rehabilitation of existing systems, and system maintenance.
- The **Combined Sewer Overflow program** is identifying candidate sites for early action cleanup under the Lower Duwamish Superfund listing. It is also preparing a request for proposals for the CSO program review, which will provide information for the 2005 CSO Control Plan Update.
- The **Biosolids program** completed its evaluation of four biosolids technologies in early 2002. We anticipate doing additional testing of promising technologies in 2003.
- The **Water Reuse Technology Demonstration Project** was completed in March 2002. This program assessed seven wastewater treatment technologies for their ability to reduce the size of satellite treatment facilities, reduce costs of producing reclaimed water, and cost effectively produce reclaimed water suitable for discharge to fresh water. Final reports on the assessments will be available in June 2002.
- The **Capacity Charge** was adopted as Ordinance 14219 by the King County Council. The monthly capacity charge is \$20.25 per new residential customer or equivalent for 15 years in 2000 dollars with annual increases for inflation.

# Treatment Improvements

The RWSP provides direction for improvements at both of its existing regional wastewater treatment plants. The plan also identifies the need for a new treatment plant in the north service area to provide capacity for the rapidly growing population in this area. The specific treatment improvements include:

- Constructing a new 36 million gallon per day (mgd) secondary treatment plant by 2010
- Upgrading facilities at the West Treatment Plant to treat the extra flow from combined sewer overflow control projects by 2018
- Increasing the capacity of the South Treatment Plant from 115 to 135 mgd by 2029

Following the adoption of the RWSP late in 1999, the King County Department of Natural Resources and Parks (DNRP) began a process to site the Brightwater Facilities, including a treatment plant, its associated conveyance pipes, and an outfall discharging to Puget Sound. To date, the county has completed the first two phases of the process, essentially narrowing the number of plant sites from 95 to 2 and identifying four zones in Puget Sound for locating the plant's marine outfall. A brief summary of the Phase I & II siting process is provided below. The report then describes our work since January 2002 on Phase III—the environmental review process under the State Environmental Policy Act (SEPA)—followed by a summary of other Brightwater activities such as our public involvement efforts, consultant selection, and the schedule for the remainder of 2002.

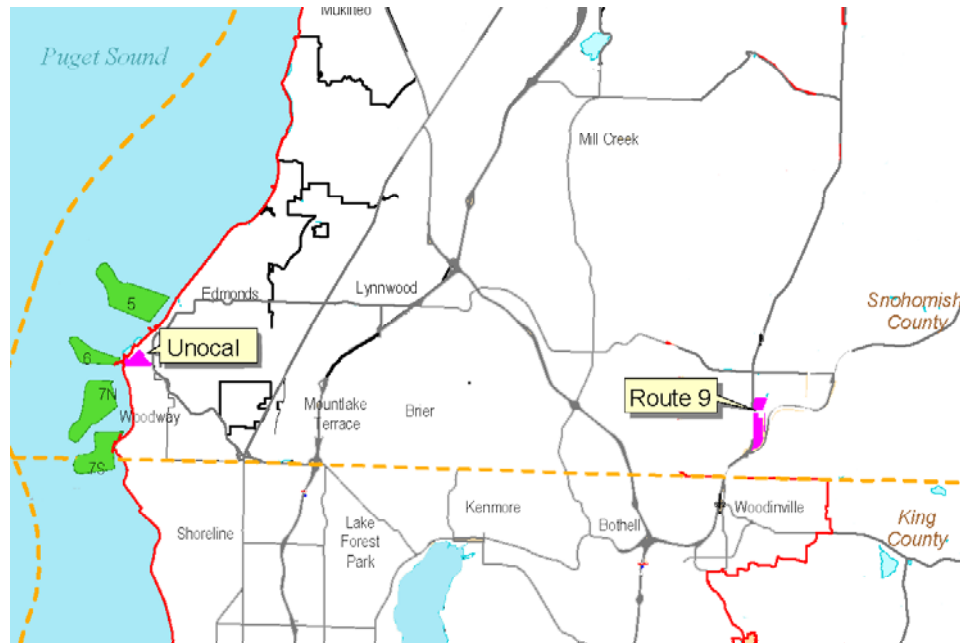
## Brightwater Siting Process—Phase I & II

In May 2001 DNRP completed Phase I of the siting process, identifying six candidate treatment plant sites and eight candidate marine outfall zones for further consideration under Phase II. The King County Council also adopted the plant sites and outfall zones on May 14, 2001, along with a set of criteria to help further narrow these sites.

Phase II of the siting process began in June 2001 and was broadened to evaluate complete “candidate systems” for each site; that is, conceptual systems that included a general plant layout and two options for the conveyance pipes serving the plant. One conveyance option involved burying the pipes just below the surface and the other involved tunneling the pipes deep underground. Each conceptual system also included two options for where the marine outfall would be located. Developing these six candidate systems allowed DNRP to compare them consistently and fairly, especially related to cost and potential impacts. On September 17, 2001, the King County Executive, in consultation with the Snohomish County Executive, transmitted a recommendation to the King County Council to advance two candidate systems to

Phase III for environmental review under SEPA. One is the **Unocal** system in Edmonds and the other is the **Route 9** system north of Woodinville (Figure 1).<sup>1</sup> On December 10, 2001, the Council approved these systems for advancement to Phase III.

**Figure 1**  
**Treatment Plant Systems being Evaluated under Phase III**



## **Environmental Review Process–Phase III**

The primary activity under Phase III of the Brightwater Siting Process is to conduct an environmental review of the Brightwater facilities under the guidelines of the State Environmental Policy Act, which provides a framework for agencies, tribes, and the public to consider the environmental consequences of a proposed project. For large projects like Brightwater, the possibility for significant adverse environmental impacts during construction and operation requires the development of an environmental impact statement, or EIS. In addition to documenting environmental impacts, the EIS identifies reasonable project alternatives and proposes mitigation measures that would avoid or minimize adverse impacts.

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1. For an overview of the Phase I and II of the Brightwater siting process, please see pages 5–10 of the *Regional Wastewater Services Plan 2001 Annual Report*, released in December 2001. This document can be accessed on the RWSP Web site at <http://dnr.metrokc.gov/wtd/rwsp/library.htm>. More detailed discussions of the siting process can be found at <http://dnr.metrokc.gov/wtd/brightwater/library.htm>.



In the first half of 2002, DNRP focused on developing the scope of the Brightwater environmental impact statement. The scope identifies alternatives for the Brightwater project, including the development of several conveyance corridors for each treatment plant site and the possible location of pump stations and tunnel portals along those corridors. These alternatives were described in a scoping notice mailed to approximately 60,000 people in May 2002. Recipients included regulatory agencies, jurisdictions, tribes, environmental groups, and households and businesses located in or near the conveyance corridors, portal areas, or pump station areas. The comments from the scoping notice will help us focus the environmental analysis and the content of the draft EIS, which is due to be released in October 2002. Similarly, comments received on the Draft EIS will be used to prepare the Final EIS and to help decide on a final system configuration for Brightwater.

## **Identifying Conveyance Corridors**

Several steps were taken to identify possible conveyance corridors for the proposed Brightwater system. During the early planning process, conveyance corridors to and from several treatment plant sites were evaluated at a conceptual level to allow a broad comparison of engineering requirements and environmental constraints. After the Unocal and Route 9 treatment plant systems were identified for consideration in the EIS, a more detailed screening process was undertaken to further refine alternative conveyance corridors for each of these systems.

The goal of the screening process was to select the conveyance alternatives for each treatment plant system that met engineering objectives and minimized environmental and community impacts. In the process, we considered engineering, environmental, community, and land-related factors. For example, engineering considerations included the volume of wastewater to be conveyed, the need to connect to existing pipelines and conveyance facilities, the total length of pipelines, the number and depth of tunnel portals used for pipeline construction, and the number of pump stations that would be required. Environmental considerations included the number of wetlands and streams that would be affected and the impact that construction would have on roadways and traffic circulation. To minimize impacts on the community, we tried to identify corridors that would maximize the use of existing rights-of-way and minimize the acquisition of private property.

Figures 2 and 3 show the conveyance corridor alternatives identified as part of the scoping process for Route 9 and Unocal, respectively. These corridors will be evaluated under the Brightwater environmental impact statement.

Figure 2  
Route 9 Conveyance Alternatives with Potential Portal and Pump Station Locations

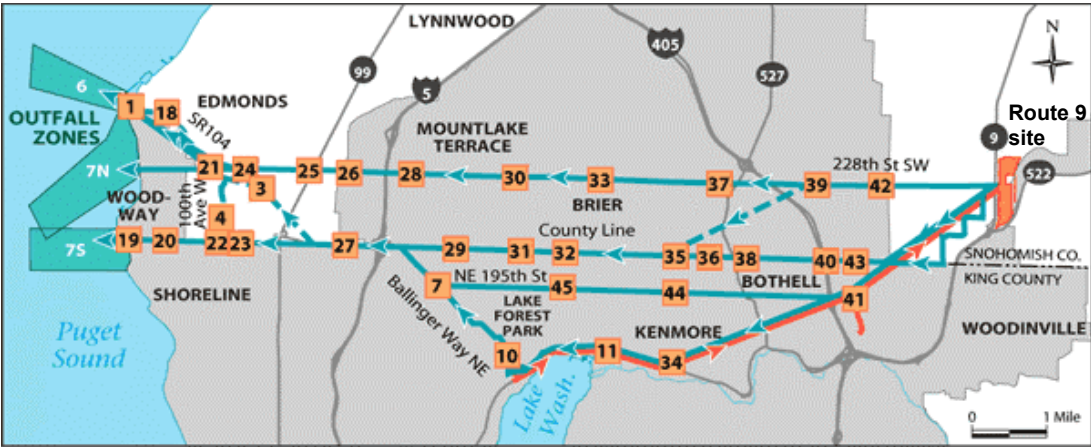
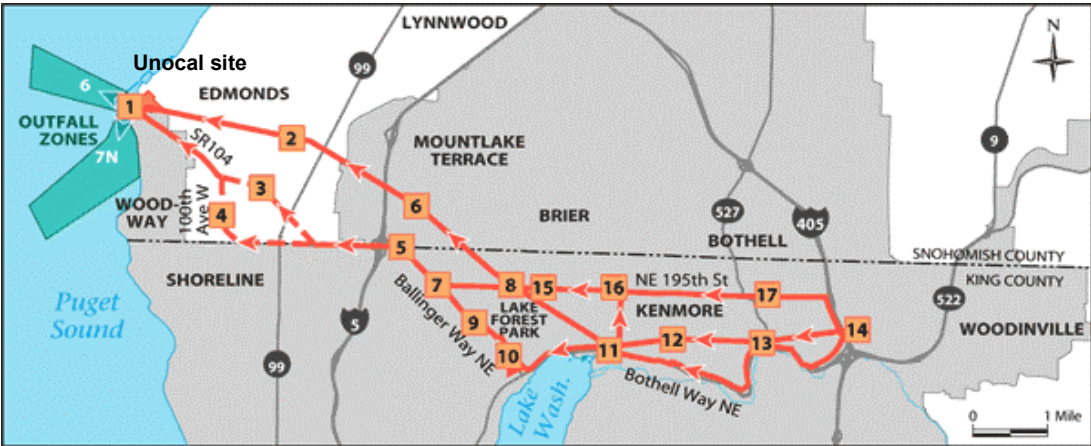


Figure 3  
Unocal Conveyance Alternatives with Potential Portal and Pump Station Locations



## Identifying Pump Station and Portal Locations

For each of the conveyance corridor alternatives shown in Figures 2 and 3, we identified several 2,000-foot-diameter “siting areas” where tunnel access portals and pump stations would be needed. These siting areas show up as numbered squares on the figures. Within each siting area we will need to identify a one to two-acre area for the pump stations or access portals, a process we’ll accomplish by applying a multi-step land use analysis based on the following approach.

- Avoid regulated sensitive areas such as wetlands, streams, and steep slopes if possible
- Try to locate facilities in publicly-owned rights-of-way
- Look for undeveloped, buildable lands that are large enough to accommodate facility construction; In the absence of adequate buildable acreage, look for underdeveloped lands such as large lots with few improvements or clusters of smaller lots with few improvements
- Consider developed lands only if adequate acreage of undeveloped and underdeveloped lands is not available. We would purchase properties that are for sale if possible and try to acquire properties in a manner that minimizes impacts to individuals and surrounding communities

Detailed information about the proposed system areas can be found on the Brightwater Web site at <http://dnr.metrokc.gov/wtd/brightwater/env/>.

## Public Involvement

King County DNRP continues to place a high priority on involving stakeholders and members of the public in the Brightwater siting process. Many new activities are underway in 2002, such as the initiation of community task forces and community design workshops, in addition to the continuation of ongoing activities such as quarterly newsletters, speakers’ bureau, and the Web site. These and other activities are summarized below.

**Public Meetings:** Public scoping meetings offered in June 2002 provide the public with an opportunity to comment on the environmental and community issues they believe should be addressed in the environmental impact statement. Public meetings will also be held in November 2002 to offer the public the opportunity to comment on the draft environmental impact statement.

**Community Task Forces:** A Unocal site Community Task Force and a Route 9 site Community Task Force have been formed as a way to involve community members who live near and around each potential treatment plant site in the Brightwater siting process. The task forces will assist in planning informational seminars and events that they feel will be most helpful in involving the public in their area and assist in the planning of the community design workshops.

**Community Design Workshops:** These workshops offer the public the opportunity to become actively engaged in how the Brightwater plant is designed and will take place in summer 2002 in the communities of the Route 9 and Unocal sites. Two series of three workshops will be held.

**Conveyance Community Outreach:** Informational mailings, meetings, and briefings will take place later in 2002 to inform and involve residents, businesses, landowners, and local jurisdictions that may be affected by potential conveyance corridors, pump stations, or portal locations.

**Executive Advisory Committee:** In June 2000, King County Executive Ron Sims and Snohomish County Executive Bob Drewel jointly appointed regional leaders to this committee to advise the two county executives on site selection criteria and a variety of regional policy issues and concerns. In 2002 the Committee will help to develop policy questions for the executives to consider during their deliberations on technological, environmental, financial, and regional considerations.

**Fairs and Festivals:** Informational booths on the Brightwater project will be at six fairs and festivals that will be staffed at various locations throughout the siting area in spring and summer 2002. Staff will be available to answer questions and receive comments from the public.

**Speakers' Bureau, Meetings, and Briefings:** Brightwater project staff are available to talk with and respond to concerns of groups or organizations at any time. Since January 2000, over 250 meetings, briefings and speakers' bureau activities have taken place.

**Newsletters and Mailings:** A project newsletter is distributed by mail at quarterly intervals and is available at a number of locations in the siting area. The public can send in their comments or questions through the use of the newsletter's postage-paid comment form. Postcards and flyers announcing activities and special events are also distributed by mail and posted on the project web site.

**Project Web site:** A project Web site that is regularly updated serves to both inform the public and invite their participation in the Brightwater siting process. The site receives approximately 1,000 visitors each month, allowing them to make comments, ask questions, and receive information. It can be accessed at <http://www.dnr.metrokc.gov/wtd/brightwater>

## Consultant Selection

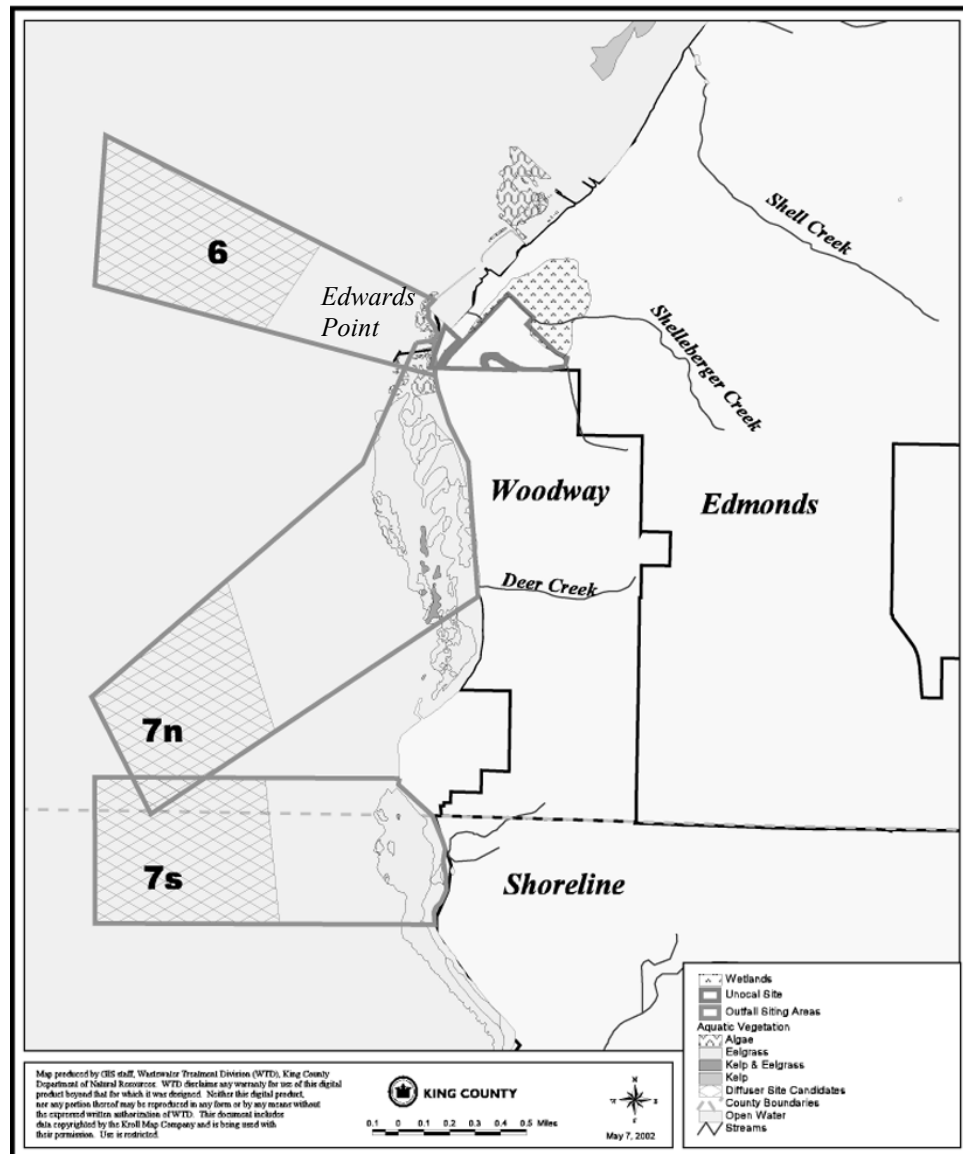
The architectural design team of Mithun/Hargraves was selected for the Brightwater Treatment Plant and contract negotiations are underway. Mithun/Hargraves has national and international experience with impressive project credentials. For example, Mithun was the architect for the REI flagship store in Seattle as well as for the Lake Union Landing and Pier 56. Hargraves was the landscape architect for the Sydney Olympics and the Lisbon World Exposition in Portugal. The design team was selected by a 10-member panel, including two community members from the Unocal site area and two from the Route 9 site area. We have also recently negotiated a contract with CH2M Hill to serve as the engineering consultant for the Brightwater Treatment Plant, and we are currently advertising for an engineering consultant for predesign on the Brightwater conveyance system, including the marine outfall. We expect to select that consultant and have a contract signed by November 2002.

## Siting the Brightwater Marine Outfall

As part of the Brightwater siting process, DNRP has been working to identify a suitable site for a new marine outfall for the Brightwater Treatment Plant. Phase I of this effort focused on providing basic scientific information on Puget Sound to support the siting of the outfall and its subsequent permitting and design. This information included seabed geology, currents, marine life, and chemical and bacteria conditions in Puget Sound. The siting process identified constraints that would seriously limit the siting of an outfall, developed screening criteria, and applied detailed evaluation questions to systematically narrow the outfall zones under consideration. At the conclusion of Phase II, the council approved five of these zones for further analysis under Phase III. After further analysis, three of the zones (6, 7n, and 7s) have been carried forward for scoping as part of the environmental review process in Phase III. The marine outfall zones are shown in Figure 4.

We made several new discoveries about the flows and currents in Puget Sound as a result of Brightwater. For example, we found that our recommended outfall zones are within the convergence of three major estuarine flows, which will provide excellent mixing of an effluent discharge. In addition, the deepest outflow in Puget Sound is located off Point Wells and Edwards Point, with a significant north-south current for effluent plume dispersion. In fact, the oceanward flow in this area is 10 times greater than the average flow for the Mississippi River. Overall, we have discovered that there is no better place in Puget Sound for a deep effluent discharge than the waters in our recommended outfall zones.

**Figure 4**  
**Outfall Zones Considered in Environmental Review**



## Schedule for 2002

Activities for the remainder of 2002 are focused on the environmental review process. We are preparing four public meetings to provide additional information on the proposed Brightwater project and to receive public comments on the scope of the EIS. These meetings will be held in Lake Forest Park (June 5), Woodinville (June 6), Edmonds (June 10), and Bothell (June 18). After compiling the comments from these meetings and from the scoping notice, we will begin writing the draft EIS (DEIS) and expect to issue the DEIS in mid-October. The subsequent public hearings and public comment period will end in late November. These activities are summarized below.

**May 2002:** The environmental review process begins. A Determination of Significance and Scoping Notice is issued pursuant to the State Environmental Policy Act (SEPA). The public is asked to comment on the scope of the environmental impact statement (EIS).

**June 2002:** Public meetings will be held to receive comments on the scope of the EIS.

**Summer 2002:** Workshops will be conducted to involve the community in formulating treatment plant design guidelines; public meetings will be held to discuss alternative pipeline corridors and other conveyance facilities.

**October 2002:** The draft EIS will be issued; it will analyze alternative treatment plant sites, pipeline corridors, and marine outfall zones.

**November 2002:** Public hearings will be held; the public will have an opportunity to comment on the Draft EIS.





# Conveyance Improvements

Planning, design, and construction work continues on a number of conveyance projects outlined in the Regional Wastewater Services Plan. Conveyance improvements are outlined under three sections, beginning with planning activities carried out as part of the Conveyance System Improvement program. The second section describes projects in design and the third section details projects in construction. Schedule information is presented for each planning area and each project. For additional schedule information on the RWSP conveyance projects in design or construction, please see the section in this report titled “RWSP Project Information.”

## Conveyance Planning

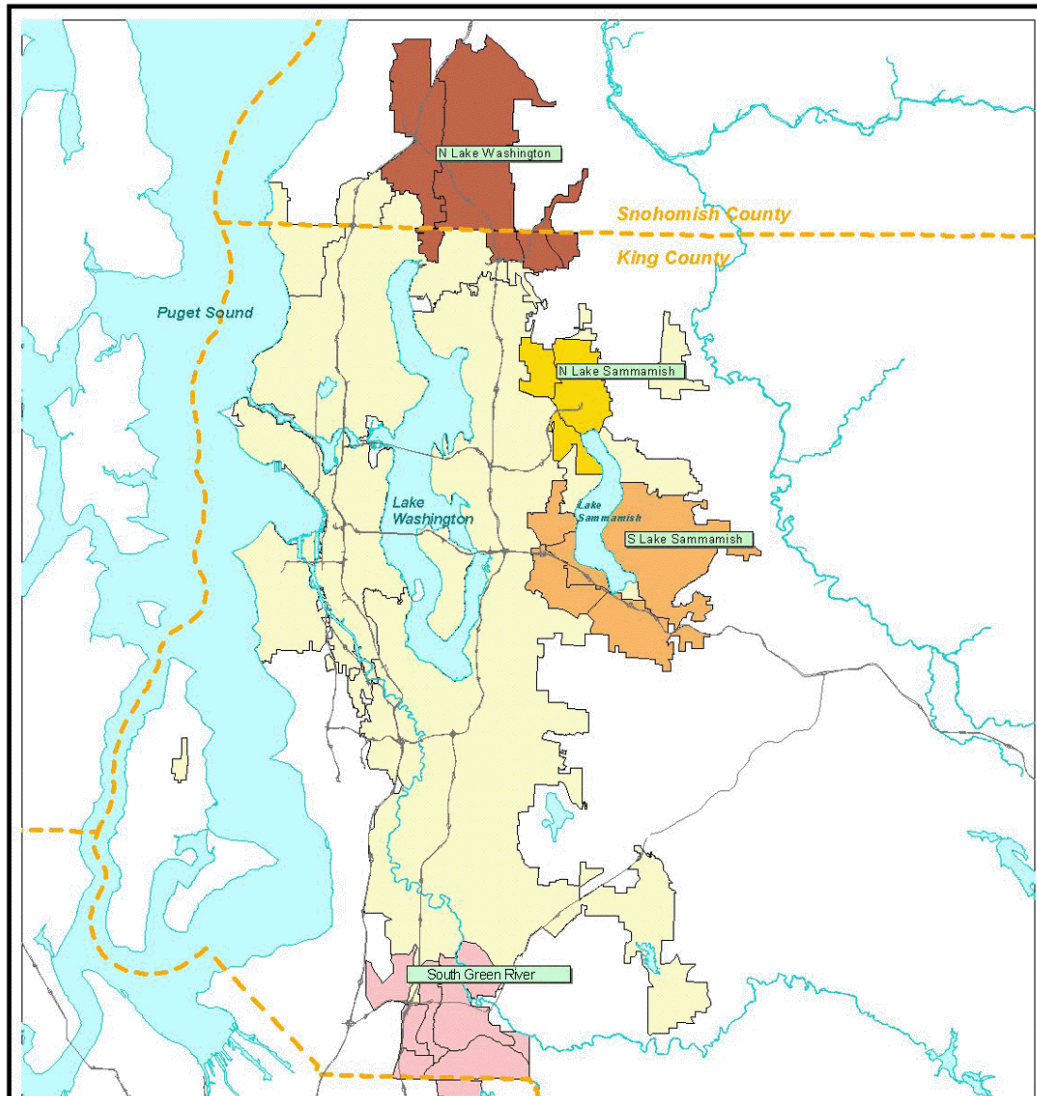
Wastewater basin planning is underway in several of the county’s regional basins as part of the Conveyance System Improvement (CSI) program. The focus of the CSI program is to upgrade and improve the level of service of the regional conveyance system for the 34 local sewer agencies in King and Snohomish Counties. The CSI program integrates with the RWSP and other programs such as asset repair and replacement to provide consistency in conveyance planning system-wide and to take advantage of opportunities to address common issues, leverage resources, and minimize customer disruption.<sup>2</sup>

Beginning in 1999, the CSI program identified and prioritized ten planning areas in the wastewater service area. Starting in the highest priority areas, teams of county staff and consultants began a comprehensive planning process to evaluate the area’s conveyance needs. The teams also identified a range of flow management alternatives and specified working alternative to address the needs. Planning is underway this year in four planning areas: south Lake Sammamish, north Lake Sammamish, north Lake Washington, and south Green River (Figure 5).

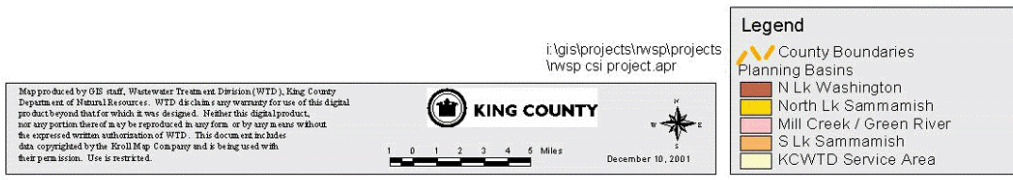
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2. Visit the CSI Web site at <http://dnr.metrokc.gov/wtd/csi/index.htm> for more information.

**Figure 5**  
**Current Conveyance Planning Areas**



**Figure 5: Current Conveyance Planning Areas**



## South Green River Planning Area

Planning was completed for this area early in 2001 and we continue to coordinate with local sewer agencies in south King County to detail needed conveyance improvements in both the regional and local conveyance systems. The South Green River Planning Area includes the King County wastewater service area south of the Kent-Cross Valley. This area is divided into three planning zones—the City of Kent, the City of Auburn (including the City of Pacific), and the southern part of the Soos Creek Water and Sewer District (which includes Black Diamond). A model that compared projected flow with existing capacity to the year 2050 revealed that the capacity of substantial sections of the conveyance system throughout this area would be inadequate before 2010. In late 2001 and into early 2002, the county and the Soos Creek Water and Sewer District refined the working alternative identified in the various planning reports for this area. Predesign efforts on the agreed-upon facility configuration will now move forward.

For the **Kent and Auburn planning zones**, the current working alternative is to build a separate pipeline near the West Valley Highway. This new pipeline—the Southwest Interceptor—would divert flow from south Auburn around the Auburn Interceptor and relieve the capacity problems in the existing line. A number of minor connection/diversion projects are planned to bring wastewater flow to the Southwest Interceptor.

For the **Soos Creek planning zone**, the CSI team developed alternatives that would maximize the use of gravity sewers, provide regional and local benefits such as eliminating pump stations, and maintain flexibility to respond to future needs. The arrays of alternatives involve routing flows from the Black Diamond area along State Route 18 toward Kent and Auburn. In late 2001 and early 2002 the county and the Soos Creek Water and Sewer District agreed on a local and regional configuration of pumping stations, forcemains, and gravity lines that, in total, represent the lowest public cost alternative for service to that area. The county will build, own, and operate most of the significant facilities and will provide for direct connection of Black Diamond to the King County system. This plan retains many elements of the original county working alternative while "optimizing" the use of both county and district facilities. It also strikes a reasonable balance of costs and facilities between the regional and local rate payers. New regional facilities in this area would provide the flexibility to accommodate future growth in the south and maximize long-term facility use.

### **South Lake Sammamish Planning Area**

Planning is continuing in the South Sammamish Basin located in central King County around the southern half of Lake Sammamish. Regional wastewater facilities in the basin collect flows from the Sammamish Plateau Water and Sewer District on the east side of Lake Sammamish, the City of Issaquah at the south end of the lake, and parts of the City of Bellevue to the west of Lake Sammamish. The primary problem in this area is the more than 20,000 feet of large-diameter pipe that will reach capacity within this decade, in some cases causing storm-related overflows as well as O&M issues related to two aging county pump stations. This is also a high growth area. The planning team is developing alternatives for conveyance upgrades, diversions, and projects to attenuate peak flows, such as storage and I/I control. We expect to develop working alternatives early in the fall of 2002.

### **North Lake Sammamish Planning Area**

Planning is beginning in the North Lake Sammamish Planning Area, which includes Redmond and the north end of Lake Sammamish. While there are no significant problems in this high growth basin, flow management planning was accelerated to coordinate with the Brightwater Treatment Plant siting process because wastewater from this area will ultimately be sent to the new plant. Planning for this area will be completed in late 2002.

### **North Lake Washington Planning Area**

The North Lake Washington Service Area includes the areas north and east of the Kenmore Interceptor in King and southern Snohomish Counties. Problems in this basin include overflows from heavy rains and failures resulting from power loss. This is also an area of high population growth. Construction has begun on the North Creek Storage Facility, and we have designed a solution to increase the reliability of the Sheridan Beach collection system and reduce the probability of future flooding events. Part one of this project—a basin collection line redirecting flow from smaller basins—has been completed; the balance of the project will be completed by year's end.

## **North Lake Interceptor**

Integrated planning continues for the proposed North Lake Interceptor (NLI) as part of the North Lake Washington basin planning and development of the Brightwater conveyance system. The section of the proposed Brightwater conveyance systems identified as the former NLI would convey flow eastward from the McAleer/Lyon Trunks to the Kenmore Pump Station and then on to either the Route 9 Treatment Plant or northward to the Unocal treatment plant site depending on which is selected. This conveyance will enable us to send flow to the Brightwater Treatment Plant (Unocal or Route 9) or to the West Point Treatment Plant during emergencies. Integrating this section of pipe into the Brightwater conveyance system will ensure that the county can convey most flow away from the Lake Line, except for local flow sent directly to the Lake Line.

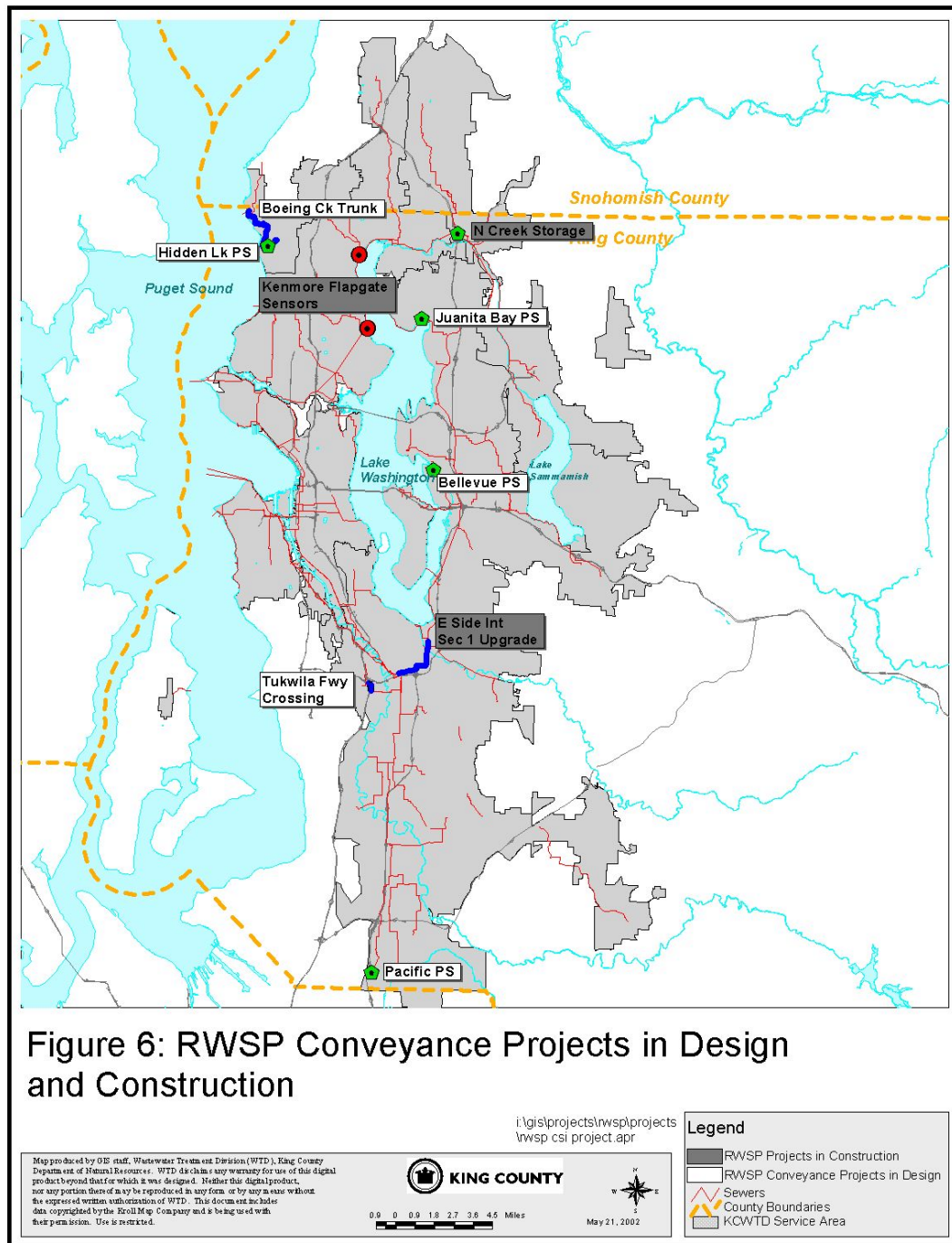
## **Seismic Vulnerability Study**

In 1999, the King County Council directed and authorized a seismic vulnerability study to evaluate all the county's major underwater conveyance pipelines. A final consultant task list was developed to assess the vulnerability of these pipelines to earthquake damage and to recommend short and long-term protective action if warranted. The study, which began in May 2000, assessed pipes under Lake Washington, Lake Sammamish, the Ship Canal, sloughs, rivers, and creeks. The first report assessed the seismic vulnerability of the Kenmore Interceptor. The report identified a range of working alternatives based on various costs and risks to public health. King County DNRP is currently reviewing drafts to the second and third reports. All the reports will soon be complete and we will prepare a recommendation on what improvements, if any, are necessary for underwater pipelines.

## **Projects in Design**

After a working alternative for a particular conveyance project is identified during the planning process, the project starts predesign and is assigned a project number and project manager. Following predesign, which takes a project through approximately 30 percent of the design process, the project starts final design, where detailed drawings and specifications for construction are developed. There are five RWSP projects currently in design. The projects are shown in Figure 6.

**Figure 6**  
**RWSP Conveyance Projects in Design and Construction**



### **Bellevue Pump Station**

A preferred alternative was selected to divert excess flows from the Sweyolocken Pump Station toward the East Side Interceptor. The proposed alternative is to upgrade the Bellevue Pump Station and construct a new 5,500 foot-long, 24-inch diameter force main from the pump station to the East Side Interceptor. This project provides needed capacity to prevent sewage overflows at the Sweyolocken Pump Station. We expect to select a design consultant for this project in July 2002.

### **Pacific Pump Station**

The existing 3.4-mgd Pacific Pump Station, located in City of Pacific street right-of-way, has insufficient capacity to convey the existing and future peak flows. This project will construct a new 7-mgd pump station at an alternative site, a permanent generator to provide dedicated backup power supply, and possibly a new 12 to 16-inch force main to replace the existing one. The predesign consultant was selected in October 2000 and notice to proceed on predesign was given in April 2001. Predesign will be completed in summer 2002. Working with the City of Pacific and adjacent property owners, we have identified 1st Avenue NW right-of-way as the preferred location for the pump station. This site is contingent on obtaining a ditch setback waiver from City of Pacific and a permit for use of the right-of-way for the pump station.

### **Juanita Bay Pump Station**

The Juanita Bay Pump Station is an aging facility that is experiencing significant operational difficulties in conveying current flows. The working alternative recommended for predesign is to replace the existing 14.2-mgd pump station with a new 28-mgd pump station. However, the predesign study will determine whether the existing pump station will be replaced or rehabilitated. The study will also evaluate whether or not the Juanita forcemains will require repair, replacement, or an upgrade. Predesign for the project is underway and will be completed by September. We have identified a final site for the pump station and are evaluating conveyance routing alternatives for the forcemains. We will begin final design in the last quarter of 2002.

### **Hidden Lake Pump Station and Boeing Creek Trunk**

This project has three elements that will reduce the number of storm related overflows at the Hidden Lake Pump Station. One is to increase the capacity of the pump station from 3.8 to 5.5 mgd, either by retrofitting or replacing the existing Hidden Lake Pump Station. Another element is to parallel or replace 6,400 feet of the Boeing Creek Trunk where restrictions have reduced pipe capacity. The third element is to construct 0.5 million gallons of storage upstream of the Hidden Lake Pump Station. The project is larger in scope than previously estimated because it



combines replacement of the pump station (asset management) and accommodates more infiltration and inflow (I/I) than was originally estimated. The project will be in predesign through June; design will begin in July and should take approximately one year.

### **Tukwila Freeway Crossing**

King County DNRP is evaluating alternatives to upgrade portions of the Tukwila Interceptor and Tukwila Freeway Crossing under the I-5/I-405 freeway near Tukwila. The working alternative will initially parallel or replace portions of the Tukwila Freeway Crossing, but before the project is ready for predesign we must receive additional information from the Port of Seattle regarding their predicted industrial waste discharges and sanitary flow into our system. We expect this information late in 2002. In addition, we must complete basin planning for the north Green River basin, which is anticipated to begin early in 2003.

## **Projects in Construction/Underway**

Two large capital projects began construction late last year, the North Creek Storage facility and the repairs to a damaged section of the East Side Interceptor. In addition, we are now testing the flapgate sensors on the Kenmore Interceptor. Construction projects are shown on Figure 6 (pg. 18).

### **North Creek Storage**

Construction has been underway since November 2001 on the 6-million-gallon North Creek Storage Facility. This underground facility, located at the site of the North Creek Pump Station, will store sewage flows from the Bothell-Woodinville and North Creek Interceptors during large storms, providing protection against sanitary sewer overflows into Lake Washington upstream of the Kenmore Interceptor. After the storm, the stored flow will be pumped back into the interceptors. The anticipated end of construction is November 2003.



### **East Side Interceptor**

The East Side Interceptor (ESI) is the primary conveyance for wastewater from the eastside communities to the South Treatment Plant. In 1965, a section of the ESI was damaged during an earthquake, which reduced the capacity of the pipe. This project will restore the East Side Interceptor to its original design capacity of 224 mgd by constructing 1,800 feet of 72-inch pipeline around the earthquake damaged section (Section 1). The construction will use a tunnel-boring machine, placing the new pipe approximately 30 feet underground. Construction, which began in February for the access pits, is expected to be completed at the end of 2002.

### **Kenmore Interceptor Flapgate Sensors**

The Kenmore Interceptor, also known as the Lake Line, is a gravity sewer in Lake Washington that conveys sewage from the Kenmore pump station and Log Boom Regulator into the Matthews Beach Pump Station. The Lake Line has a series of seven flap gates that open automatically if the line becomes surcharged during extreme high flows, protecting the Matthews Beach Pump Station from flooding or shutting down. This only happens on rare occasions but, until recently, it was difficult to confirm whether the flap gates had opened and discharged sewage into the Lake. To address this issue, DNRP committed to a system that can monitor the flap gates so we can alert residents of potential health hazards if the gates open and discharge sewage. The county has completed the design of the flap gate monitors and the components were installed in July 2001. King County DNRP began testing the sensors and developing a response sequence for use by Wastewater Operations and Maintenance staff. We are working with the with the Ronald Sewer District (owner of the local sewer lines), the City of Lake Forest Park, and the nearby community on ways to keep them informed in the event the flap gates open. Testing will continue for an additional 12 months.



# Infiltration and Inflow

The Regional Infiltration and Inflow Control program is a comprehensive six-year study to identify sources of infiltration and inflow (I/I) into local sewer systems. The study is based on a cooperative partnership between King County and the 34 local component agencies serving King County and portions of Snohomish County. The primary goal of the program is to define current levels of I/I within each local agency, determine how much I/I is cost effective to remove, and develop a plan for the long-term control of increased I/I into the service area and regional system.<sup>3</sup>

A considerable amount of work was accomplished during the first half of 2002, including flow monitoring; hydraulic modeling using the flow monitoring data; developing regional I/I control standards, procedures, and policies; and selecting pilot rehabilitation projects.

## Flow Monitoring

A key component of the 2001–02 work effort was completing the flow monitoring to identify sources of infiltration and inflow in the local agency sewer systems. This monitoring was a continuation of the program we started during the very dry winter of 2000–01.<sup>4</sup> Fortunately, the winter of 2001–02 was much wetter, with 12–15 inches of rain falling in the service area between November 1, 2001, and January 15, 2002. During that time we collected flows and rainfall information from ten individual storms. The results of the flow monitoring program were outlined in a report titled *2001/2001 Wet Weather Flow Monitoring*. The report, issued in May 2002, includes an executive summary and two compact disks with data from the flow monitors and rain gauges as well as the findings from our analysis. The local agencies and MWPAAC (Metropolitan Water Pollution Abatement Advisory Committee) utilized the analyzed data in conjunction with previously approved selection criteria to pick a series of pilot projects from throughout the region, as described later in this section.

## Conveyance System Hydraulic Modeling

Having completed the flow monitoring, DNRP is beginning the conveyance system hydraulic modeling effort by calibrating the modeling basins using the flow monitoring information. Since early 2001, local agency modeling basins have been developed to identify basin boundaries, land use coverages, and sewered or unsewered areas. The modeling will allow us to predict our peak flow for the 20-

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3. To learn more about infiltration and inflow, please visit the Web site at <http://dnr.metrokc.gov/wtd/i-i/index.htm>

4. While 2000–2001 conditions were less than ideal to measure peak I/I levels, they were excellent for recording baseline dry flow conditions. We now have a comprehensive dry weather flow database from which to assess the quantities of I/I that find their way into the local agency sanitary sewers and ultimately into King County's conveyance and treatment system.

year design storm in our separated system and to determine downstream impacts from possible I/I reductions. It will also allow us to estimate I/I flows resulting from various rainfall amounts in the service area.

## **Developing Standards, Procedures & Policies**

King County DNRP is facilitating the development of regional I/I control standards, procedures, and policies for new construction, rehabilitation of existing sewer systems, and sewer system maintenance for local agencies. These standards are based upon existing local agency standards and practices as well as national industry practices. They are being developed to provide a uniform and effective methodology to locally control I/I levels, including I/I sources on private property. These standards, procedures, and policies were first discussed at a local agency workshop (Workshop 7) in January 2002. Since the workshop, members of MWPAAC tasked the RWSP Subcommittee to hold regular meetings on the draft design standards, procedures, and policies.

The RWSP subcommittee met seven times Between February and May 2002. During these working sessions members discussed their current methodologies to address various standards for public and private sewer systems and contractors. Members also discussed the financial and operational impacts of the proposed standards and will decide whether to recommend approval, edit, or remove a particular standard or policy. Based on these discussions, the consultant team will redraft some standards to better reflect an acceptable and viable standard for the local agencies and DNRP. Once completed, the regional I/I control standards, procedures, and policies will be submitted to the local agencies for review and forwarded to the King County Executive by December 31, 2002, per RWSP I/I Policy 2.

## **Selecting Pilot Projects**

One important component of the first phase of the I/I program is to implement pilot rehabilitation projects in the local sewer systems to demonstrate the effectiveness of I/I controls. To begin this process, local agencies submitted 66 projects for consideration as candidate pilot projects. The candidates came from the north, east and south regions of the wastewater collection system. Local agency representatives from each region met to review the candidate projects and forwarded up to 10 projects for final consideration at Workshop 8. Two regions submitted 10 projects and one region (east) submitted 9 projects. These 29 pilot candidates were presented to the King County Regional Water Quality Committee and Utilities Committee, and both committees passed motions in favor of the projects. The list of pilot projects was approved by full Council on April 29, 2002. This action satisfies RWSP Policy 2.1 for submittal and approval of pilot projects prior to July 31, 2002.

The pool of 29 approved pilot projects was subsequently reduced to 24 when three of the manhole rehabilitation projects were combined into one regional project and three other pilots were withdrawn by local agencies. At Workshop 8 on April 30, MWPAAC selected 10 of these pilot projects from the pool of 29 for implementation: three each from the north, east, and south regions plus the regional manhole rehabilitation project. The selected pilots include a mix of public and private projects located both within cities and local sewer districts. On May 8, 2002, program staff briefed the RWQC on the 10 selected pilot projects and provided background on the next steps for sewer system evaluations.

## **Schedule for 2002**

### **Pilot Basins/Projects**

In May 2002 the Sewer System Evaluation Surveys (SSES) began to help define the repairs that are needed within each pilot basin/project area. During the SSES period, crews will survey manholes, sewer mains, and laterals (to homes and businesses) to identify where I/I enters the system. Methods to locate I/I access points include direct visual inspection, remote cameras, smoke testing, and dyes. This work will be completed by early fall so that project design work and environmental review can begin. The local agencies and DNRP will begin their joint public outreach effort as part of SSES to inform citizens about I/I and how we will test for it in their neighborhoods.

Preliminary design and environmental review of pilot projects will begin as early as June 2002 depending on the status of each pilot's I/I source identification, design complexity, and environmental condition. Final pilot project design is scheduled for completion by the end of March 2003. Construction on the pilot projects would begin in spring of 2003. For winter 2003–04, DNRP will conduct post-construction flow monitoring to evaluate the I/I removal effectiveness of the pilot projects.

### **Conveyance System Hydraulic Modeling**

King County DNRP will continue to calibrate the modeling basins to meet the scheduled completion time of early 2003

### **Standards, Procedures & Policies**

The RWSP Subcommittee of MWPAAC will continue to meet through September to refine regional design standards, procedures, and policies for new construction, rehabilitation of existing sewer systems, and sewer system maintenance. The program goal is to finish these discussions at the ninth workshop scheduled for October 2002. Once completed, these standards will be forwarded to the King County Council and Executive for review and approval.



# Combined Sewer Overflows

The primary work effort for the CSO Control program in 2002 to date has been to lay the groundwork for future combined sewer overflow control projects and for the 2005 CSO Update. This work includes coordinating with the City of Seattle on their CSO Plan Update and continuing response to the Environmental Protection Agency's Superfund listing of the Lower Duwamish Waterway. We are also moving forward with our sediment management plan. Each of these activities is described in more detail below.<sup>5</sup>

## 2005 CSO Control Plan Update and Program Review

The scope of work for consultant services is presently in development with the Request for Proposals (RFP) expected in late summer. The program review, which was mandated by the King County Council in their adoption of the RWSP, will include the following:

- Maximizing use of existing CSO control facilities
- Identifying the public and environmental health benefits of continuing the CSO control program
- Ensuring projects are in compliance with new regulatory requirements and objectives such as the ESA and the Wastewater Habitat Conservation Plan
- Analyzing rate impacts; ensuring that the program review will honor and be consistent with long-standing existing commitments
- Assessing public opinion
- Integrating the CSO control program with other water/sediment quality improvement programs for the region

Any program changes recommended by the Executive, Regional Water Quality Committee, and the Council will be addressed in the Plan Update that follows. Final planning for the first CSO control projects under the RWSP will begin in 2005 following completion of the program review and 2005 Plan Update process.

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5. To learn more about CSOs, please visit the Web site at <http://dnr.metrokc.gov/wtd/cso/index.htm>

## Seattle CSO Plan Update

The Seattle City Council approved Seattle's final Plan Amendment in December 2001, and there have been several meetings to discuss mutual goals and coordination needs. We anticipate the need for significant staff time in modeling potential impacts of City projects on county facilities. Both agencies will be looking for cost-effective joint project opportunities.

## Lower Duwamish Superfund Listing

In 1999, DNRP partnered with the City of Seattle, the Port of Seattle, and Boeing to develop an alternative to Superfund for cleaning up contaminated sediment in the Lower Duwamish Waterway. This partnership, in coordination with EPA and Ecology, developed a consent agreement to prepare a remedial investigation and feasibility study (RI/FS) for the Lower Duwamish Waterway. The agreement gave DNRP the opportunity to shape the process and to implement any clean ups earlier than would occur under a traditional Superfund approach. Unfortunately, the partnership was not able to reach agreement with EPA, resulting in the September listing of the Lower Duwamish Waterway as a Superfund site.<sup>6</sup> However, DNRP is continuing to meet the consent agreement, progressing on the technical studies for the remedial investigation and identifying candidate sites for early action cleanup by mid 2002. In addition, DNRP worked with the City of Seattle and Port of Seattle to secure a state grant for the remedial investigation phase of the project.

## Sediment Management Program

King County is responsible for cleaning up sediment contamination related to combined sewer overflows under the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the state Model Toxics Control Act (MTCA). King County's plan is to comply with these regulations and meet the following objectives:

- Remediate sediments in a timely, efficient, and economical way
- Prevent harm to public health
- Limit future liability

In 2002, DNRP began two key components of the sediment management program: development of a sediment recontamination model needed for state approval of cleanup actions and selection of a contractor for individual site studies for the cleanups identified in the plan.

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6. This listing could impact the priorities for CSO control that were identified in the Regional Wastewater Services Plan. The 2005 Plan Update will assess this impact.



## **Schedule for 2002**

Work on the CSO Control program review will commence and the results of this review will be used to help develop the 2005 CSO Plan Update.

King County DNRP will continue its support of the RI/FS process for the Lower Duwamish Consent Order. It is expected that candidate early action clean up sites will be identified by mid year. We also expect to move ahead on the sediment management program in 2002–07 with contaminated sediment cleanups at two CSO locations: Denny Way and Diagonal/Duwamish (as an Elliott Bay/Duwamish Restoration Panel project). In addition, we will begin the cleanup process at three more CSO locations, including Hanford, Lander, and King Street. King County DNRP will continue to work cooperatively with the Port of Seattle, the City of Seattle, and Washington Departments of Natural Resources and Ecology to further cleanup efforts and share implementation costs. The timing of these cooperative opportunities could lead to proposed changes to the sediment management plan schedule.



# Biosolids

Two efforts were underway the biosolids program in 2002. One is the ongoing effort to continue producing Class B biosolids at all treatment plants. On average, King County produces approximately 135,000 wet tons of biosolids produced each year—all of which is recycled for use in forestry and agricultural applications.<sup>7</sup> The other effort is to evaluate new technologies to reduce costs and/or improve biosolids quality.

## Evaluating Class A Biosolids Technologies

King County DNRP continues to assess biosolids processing technologies that have the potential to improve biosolids quality, increase the efficiency of existing digesters, reduce truck traffic, and otherwise minimize the potential impacts of solids processing at our wastewater treatment facilities. In 2001 and early 2002, we completed evaluation of four biosolids processing technologies, including Centridry<sup>®</sup>, Vertad<sup>®</sup>, microwave gasification, and thermophilic/mesophilic digestion.<sup>8</sup> Final reports for all four projects have been completed. King County DNRP continues to have interest in the Centridry, Vertad, and thermophilic/mesophilic digestion technologies for consideration in future biosolids processing evaluations. Additional testing of the Vertad process is currently planned for 2003.

### Vertad<sup>®</sup>

This technology utilizes a 400-foot-deep vertical shaft and air injection to create high pressure, aerobic conditions suitable for thermophilic aerobic digestion. King County DNRP is considering a second phase of testing to assess the technology when operated in conjunction with anaerobic digestion. This would combine the small footprint and heat treatment provided by Vertad<sup>®</sup> with the solids destruction, gas production, and stabilization provided by standard anaerobic digestion. This process would have the potential to produce a Class A biosolids product.

## Schedule for 2002

No additional testing is planned for the remainder of 2002. However, in 2003 we anticipate beginning pilot-scale testing of the Vertad<sup>®</sup> aerobic thermophilic digestion process in combination with anaerobic mesophilic digestion.

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7. Learn more about the biosolids program at <http://dnr.metrokc.gov/WTD/biosolids/index.htm>

8. These processes were summarized on pages 27–28 of the *Regional Wastewater Services Plan 2001 Annual Report*, released in December 2001



# Water Reuse & Conservation

The goal of the county's Water Reuse program is to use reclaimed water to meet the water resource needs of this region's residents and environment. The five-year Water Reuse Work Plan was transmitted to council in December 2000 and two primary implementation efforts are underway: the technology demonstration project<sup>9</sup> and the satellite treatment facility.

## Water Reuse Technology Demonstration Project

King County DNRP began operating a water reuse technology demonstration facility at the West Point Treatment Plant in June 2001. The nine-month project is evaluating the effectiveness, operability, and cost of seven wastewater treatment technologies. The goal of this program is to identify technologies that could:

- Minimize the size of a satellite treatment facility
- Reduce the costs and potential impacts of producing "Class A" reclaimed water at small, upstream "satellite" plants for commercial and irrigation uses
- Cost-effectively remove nutrients, pathogens, organics, and other contaminants from wastewater as may be necessary to make reclaimed water suitable for discharge to freshwater to supplement surface water supplies

The demonstration facility combines several treatment technologies into small-scale operational process systems to assess their ability to meet process objectives. For example, one of the first technologies operated was a "Fuzzy Filter," which is a column containing tightly packed compressible filter media typically used for tertiary treatment. We are also evaluating this technology for its ability to provide primary treatment by decompressing the media and reducing flow through the column. Another technology being tested is a membrane bioreactor. This technology combines a biological process to provide secondary treatment with membrane filters that screen particles larger than one-tenth of a micron from the aerated bioreactor to produce Class A quality effluent. This technology has the potential to eliminate the need for a primary treatment process, secondary clarification, and tertiary filtration. Operation of the facility was completed in March 2002. Final reports assessing the performance of each of the technologies will be available in June 2002.

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9. Please see the new section of the reuse program Web site for more information on treatment alternatives for water reuse project at <http://dnr.metrokc.gov/wtd/reuse/index.htm>

## **Sammamish Valley Reclaimed Water Production Facility**

In 1997, the Water Reuse Policy Development Task Force adopted a needs statement suggesting that “recycling and reusing highly treated wastewater effluent should be investigated as a significant new source of water.” As part of the RWSP, DNRP is striving to meet the intent of this statement in part by evaluating this region’s need for a satellite treatment facility and its ability to support it. We worked with a Stakeholder Task Force to solicit and rank nominations from public and private parties interested in partnering to implement water reuse demonstration projects. In all, we received 11 nominations representing 13 projects.

Each of these projects was ranked based on a set of criteria developed jointly with the Stakeholder Task Force. The criteria evaluated factors such as cost per unit of reclaimed water, regulatory issues, community impacts and support, and integration with other county projects. The Sammamish Valley Reclaimed Water Production Facility, which will produce between one and three million gallons per day of water for irrigation, ranked favorably on all the criteria and therefore received the highest overall ranking. Accordingly, this project was selected for implementation. Predesign on the facility began in December 2001, and we expect the project to move into the design phase in August 2002. The facility should be operational in June 2004. The project is being coordinated with the siting of the Brightwater Treatment Plant.

## **Water/Wastewater Conservation Program**

Under the Regional Wastewater Services Plan, the King County Council decided to implement a water conservation program to provide a holistic approach in water resource management and to reduce impacts to the wastewater system. Specifically, the RWSP policy calls for King County to “support regional water supply agencies and water purveyors in their public education campaign on the need and ways to conserve water through pilot projects that support homeowner water conservation, emphasizing strategies and technologies that reduce wastewater.” King County DNRP has \$300,000 per year for a five-year program. Last year’s effort involved partnering with the King County Housing Authority and the Department of Community and Human Services to replace washing machines, toilets, and shower heads at low income housing. This year’s effort includes water audits and retrofits and a continuation of public involvement activities.

## **Water Audits and Retrofits**

King County DNRP will partner with local utilities to audit King County-owned facilities that have high indoor water use. In addition, we will work with the local water utility to identify conservation opportunities, with a focus on those facilities that have high public visibility and use. Water audits are currently taking place and retrofits of washing machines and fixtures such as toilets and faucets at low-income housing will begin in the second half of the year. These retrofits will provide water savings as well as an opportunity to educate the public about water conservation. The 2002 budget for these activities is \$296,000.

## **Public Education and Outreach**

King County DNRP will continue development of educational materials that urge customers to keep trash out of the wastewater stream and remain active in the Water Conservation Coalition of Puget Sound. The 2002 budget for public education is \$4,000.

## **Schedule for 2002**

**Technology Demonstration Program:** King County DNRP has completed a nine-month program to evaluate water reuse/wastewater treatment technologies in March 2002. Final reports will be available in June 2002.

**Duwamish Corridor:** King County DNRP will continue to work with public and private water users along the Duwamish Corridor to provide reclaimed water.

**Sammamish Valley Reclaimed Water Production Facility:** King County DNRP will complete predesign and begin design in the third quarter of 2002.

**Water/Wastewater Conservation Program:** Retrofits begin in the second half of the year. King County DNRP will continue development of educational materials that urge customers to keep trash out of the wastewater stream





# RWSP Project Information

This section provides additional information for each RWSP capital project as required by Ordinance 14018 in the 2001 Budget Proviso; namely, the year-to-date budget and staffing status. The projects are organized in the following tabs as shown in the following table.

**RWSP Capital Projects by Element**

<b>Project</b>	<b>Project Number</b>
<b>Tab 1 - Treatment Improvements</b>	
Brightwater Treatment Plant	423484
Marine Outfall Siting Study	423457
<b>Tab 2 - Conveyance Improvements</b>	
RWSP Conveyance System Improvements	423373
East Side Interceptor Section 1 Repair	423420
North Creek Storage	423519
Tukwila Interceptor/Freeway Crossing	423520
Hidden Lake/Boeing Trunk Upgrade Improvement	423365
Juanita Bay Pump Station Modifications	423406
Pacific Pump Station	423518
Bellevue Pump Station	423521
<b>Tab 3 - Combined Sewer Overflow Controls</b>	
CSO Plan Update	423441
CSO Control & Improvement	423515
Sediment Management Program	423368
<b>Tab 4 - Inflow &amp; Infiltration Reduction</b>	
RSWP Local System I/I Control	423297
<b>Tab 5 - Water Reuse</b>	
Water Reuse Technology Demonstration	423483
Sammamish Valley Reclaimed Water Production Facility	423528
Water/Wastewater Conservation Program	423523

The table shows that there are 17 RWSP capital projects in various stages of design and construction. Figure 7 shows the information provided for each project, including the project's scope, milestones, schedule, budget (actuals through April 2002), and contract status. Each of these fields are described in more detail below and are consistent with the reporting requirements for Regional Wastewater Services Plan projects per Ordinance 13680 and by proviso in Ordinance 14018.

## **Project Number**

Each wastewater capital project is assigned a six-digit number such as 423413. The first two numbers (42) identify this as a wastewater project (as opposed to a transit project or roads project). The third number (3) identifies the project as a capital project (as opposed to operating) and the last three numbers are sequential numbers reflecting the order the projects were assigned in a particular year.

## **2002 Appropriation and “Percent Spent”**

The 2002 appropriation is the project budget for the year 2002; that is, the amount of money the King County Council authorized to be spent on the project that year. The “Percent Spent” number reflects how much of the budget has been spent as of the reporting period (April 30, 2002, for this report). However, projects in construction have their entire construction contract amount appropriated in the first year of construction, even if it’s a multi-year construction project. As such, the percent spent value for these projects will be very low early in the project life. This is the case for two RWSP projects now in construction: 423420 (East Side Interceptor Section 1 Repair) and 423519 (North Creek Storage).

## **Project Scope & Milestones**

The project scope gives a brief overview of the project as described by the project manager. In general, the narrative describes the project and its purpose. The project milestones identify timeframes for important achievements in the project lifecycle. The milestones listed for projects in this document are primarily for the year 2002.

## **Schedule**

The project schedule information includes a start date and an end date for the project phases that are appropriate for that project. There are six phases for construction projects: planning, predesign, final design, implementation, closeout, and land acquisition.

## **Project Cost**

Project costs are provided for contracts, staffing, and permits & right-of-way (ROW) expenditures. The costs come from the IBIS financial reporting system and are reported both year-to-date and life-to-date for the month indicated.

## Contract Information

There are generally four types of contracts associated with wastewater capital projects as identified by the first letter in the contract number: 'P' denotes a professional services contract, 'E' denotes an engineering & architectural services contract, 'T' denotes a technical consultant services contract, and 'C' denotes a construction services contract. The information provided for each contract is the total paid by project as of the report date and the contract amount. In some cases, a contract may support several projects, such as on call services, so the project may use only a portion of the contract amount.

**Figure 7**  
**Project information sheet**

<b>Project No. and Title</b> 423457 Marine Outfall Study			<b>Council District:</b> All		
<b>2001 Appropriation:</b> \$2,463,746			<b>Project Manager:</b> Shuman, Randy		
<b>Percent Spent:</b> 82%			<b>Appropriation:</b>		
<b>Project Scope</b> This project is a technical study to obtain the environmental information needed to understand the flow of water in Puget Sound in the project area, the water and sediment quality conditions in the project area and the biological resources and human uses in the area. This project, part of the Regional Wastewater Services Plan, is needed to provide basic scientific information on Puget Sound to support the siting of the outfall for the new Brightwater Treatment Plant and information needed for the permitting and predesign process for the new outfall.			A20220 Brightwater Treatment Plant- New		
<b>Milestones</b> KC Council approval of sites-May 2001 KC Council approval of system packages-Fall 2001					
<b>Schedule</b>			<b>Project Cost</b>		
<b>Phase</b>	<b>Start</b>	<b>Finish</b>	<b>Type of Project Cost</b>	<b>Year to Date NOV-01</b>	<b>Life to Date NOV-01</b>
1 Planning	1/1/2000	12/1/2003	CONSTRUCTION	\$0	\$66,419
2 Predesign			ENGINEERING CONTRACTS	\$1,363,009	\$2,780,223
3 Final Design	1/4/2004	12/31/2006	OTHER COSTS	\$116,593	\$330,574
4 Implementation			PERMITS & ROW	\$633	\$633
5 Closeout			STAFF LABOR COSTS	\$530,555	\$1,609,028
6 Land Aquisition			STAFF LABOR LTD Hours	48,263	
			<b>Total Project Cost:</b>	<b>\$2,010,790</b>	<b>\$4,786,876</b>
<b>Current Contract Information</b>					
<b>Contract Number and Title</b>			<b>Total Paid by Project</b>		
P93001P PUGET SOUND OCEANOGRAPHIC SUPPORT STUDIES			\$1,144,429		
P93009P - NORTH TREATMENT FACILITY - MARINE OUTFALL SITING STUDY			\$850,937		
			<b>Contract Amt</b>		
			\$1,363,247		
			\$1,534,999		

